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ABILITY, FAMILY SOCIOECONOMIC LEVEL, AND ADVANCED EDUCATION.

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TWO GROUPS OF NURSES OF COMPARABLE ABILITY AND ACADEMIC ACHIEVEMENT WERE STUDIED TO EVALUATE THE EFFECTS OF FAMILY BACKGROUND ON DECISIONS TO CONTINUE EDUCATION AFTER HIGH SCHOOL. BECAUSE FUTURE NURSES MAY ENROLL IN DIFFERENT KINDS OF TRAINING PROGRAMS, IT WAS FELT THAT USING THESE STUDENTS AS SUBJECTS WOULD ENABLE MORE POSITIVE IDENTIFICATION OF SPECIFIC NONCOGNITIVE FACTORS WHICH ARE IMPORTANT IN EDUCATIONAL DECISIONS. THE SUBJECTS WERE 706 GIRLS IN A 3-YEAR NURSING SCHOOL AND 382 NURSING MAJORS IN A 4-YEAR COLLEGE. DATA WERE TAKEN FROM THEIR RESPONSES TO THE BATTERY OF APTITUDE AND ACHIEVEMENT TESTS. FINDINGS SHOW THAT THERE WERE CLEAR DIFFERENCES BETWEEN THE GROUPS ON THE BIOGRAPHICAL ITEMS ABOUT FAMILY BACKGROUND AND EDUCATIONAL PLANS. THE NURSING STUDENTS IN COLLEGE CAME FROM A CONSIDERABLY HIGHER EDUCATIONAL AND SOCIOECONOMIC LEVEL THAN DID THE GIRLS IN NURSING SCHOOLS. HOWEVER, THE FAMILY ECONOMIC SITUATION ALONE WAS NOT A VARIABLE IN THE EDUCATIONAL DECISIONS OF EITHER GROUP. THE FINDINGS SUGGEST THAT THE SOCIOECONOMIC ENVIRONMENT OF A FAMILY, INDEPENDENT OF A STUDENT'S ABILITY, IS A SIGNIFICANT FACTOR IN DETERMINING THE LEVEL OF EDUCATION HE UNDERTAKES AFTER HIGH SCHOOL. THIS PAPER WAS PRESENTED AT THE ANNUAL CONFERENCE OF THE AMERICAN EDUCATIONAL RESEARCH ASSOCIATION (CHICAGO, FEBRUARY 8, 1968). (NH)

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Ability, Family Socioeconomic Level, and Advanced Education[1]

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Numerous studies have attempted to evaluate the relative importance exerted by a wide range of factors in student decisions concerning the pursuit of education after high school. Even restricting consideration to longitudinal studies, the methodological approaches utilized to explore the relationships between various factors and educational decisions have varied extensively.

At one extreme is a report presenting proportions of high school students who subsequently indicated schools attended after graduation (Schoenfeldt, 1966). As is typical in studies of this nature, a cross-tabulation approach was utilized with ability and socioeconomic environment employed as the independent variables.

The other end of the methodological continuum is exemplified by a study in preparation by the Commission on Human Resources and Advanced Education (Folger, et al., 1968). Thirty-eight key variables with respect to advanced education were identified and grouped into ten factors. Multiple partial correlations were used to study the relationship of each separate factor with educational outcomes while other variables were held constant.

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A recent article by Sewell and Shah (1967) utilizes both previously mentioned methods in relating socioeconomic status and intelligence to the amount of education acquired for a longitudinal sample of Wisconsin students. Cross-tabulations were used to show proportions of students with various plans and outcomes with ability and socioeconomic status as independent variables. Path analysis, employing partial correlations, was used to analyze the contribution of each independent variable in determining a specified outcome.

There are advantages and disadvantages associated with both approaches. Cross-tabulations tend to ignore the obvious relationship among the independent variables. Ability and socioeconomic status, for example, are both related to later educational decisions, but also have substantial intercorrelations. On the other hand, statistically adjusting for differences in ability frequently obscures other relationships.

The purpose of the present study is to evaluate the effects of family background on reported decisions concerning the acquisition of additional education. More specifically, it is intended to avoid the previously mentioned methodological dilemmas by comparing two groups which have substantially different post-high-school educational experiences but are similar in aggregate ability levels. The two groups employed in this analysis which meet these criteria are nursing students in diploma (three years in a hospital) programs and nursing students in academic (four-year college) programs. It was hypothesized that this procedure would allow more positive identification of the specific noncognitive antecedent factors important in educational decisions.

This approach is particularly relevant since the question of the relative influence of socioeconomic status and ability in determining educational progress has been well documented (Eckland, 1965; Schoenfeldt, 1966; Sewell

and Shah, 1967). In the words of Sewell and Shah (1967, p. 22);

> "Whereas males are more influenced by intelligence than by socioeconomic origins and females are more influenced by socioeconomic origins that by intelligence throughout the process of selection in higher education, both factors continue to operate on both sexes."

Schoenfeldt (1966, p. 95) reported that "a high socioeconomic score will only partially compensate for a low ability score in predicting which students will enter college."

Both socioeconomic status and ability are important determinants of educational outcomes, with ability tending to exert the greater influence. The question of the relative influence of various components of socioeconomic status on educational decisions is sought in the present analysis.

Procedure

Preparation for a nursing career remains as one of the few educational goals that can be approached by means of two alternate paths: attendance at (1) a three-year school of nursing or (2) a college offering a major in nursing. The latter leads to a baccalaureate degree as well as preparation for certification

The basic sample includes girls who participated in the Project TALENT five percent national probability sample as 9th graders in 1960 and also responded to the 1964 follow-up survey, one year after their class graduated from high school. From among these 24,661 girls, over 1,100 reported they were studying for an RN degree. The 706 girls who reported attending a three-year school of nursing were placed in one group while the 382 attending a four-year college and majoring in nursing were placed in a second.

These two groups were then compared on the maximum performance scores, non-cognitive scales, and biographical items which comprised the 1960 Project

TALENT two-day battery. Additional details concerning the test battery are provded in Design for a study of American youth (Flanagan, et al., 1962).

Results

Aptitude and Achievement Comparison

The approximately 60 aptitude and achievement tests which comprise the Project TALENT battery have been summarized in several composites. The mean scores of the two nursing education groups were compared on six of the composites: (1) I.Q., (2) General Academic Aptitude, (3) Verbal, (4) Quantitative Aptitude, (5) Technical Aptitude, and (6) Scientific Aptitude. The group means and standard deviations on these six composites are presented in Table 1.

The results exemplify what was observed on the individual aptitude and achievement tests--small and negligible differences between the two groups, with the exception of selected verbal measures. The differences between the group means achieved statistical significance on the Literature Information scale and two of the five tests of language skills, English Usage and Effective Expression.

Non-Cognitive Comparisons

The 27 non-cognitive scales included in the TALENT battery are subdivided into 10 temperament scales and 17 interest scales. The results comparing the two groups on these scales are presented in Table 1. Differences between the groups were statistically significant on four of the interest scales: Literary-Linguistic, Artistic, Musical and Business Management. In each case, the college nurse group had a higher mean that the 3-year nurses.

Student Information Blank

The ninth grade students were asked to answer over 350 items on the Student Information Blank. Of those items which differentiated the two groups, the majority can be classified in one of the two categories: (1) items relating to family background, and (2) items concerning educational plans. The results comparing the two groups on selected items are presented in Table 2.

Family Background. A socioeconomic composite made up of nine family background items summarizes the results in this area. The college nurses had significantly higher mean scores on this and other family background measures (See Table 2).

Table 3 presents the unweighted distributions on father's occupation. As can be seen, 39 percent of the college group fathers were employed in occupations classified as managerial, official, professional, owner, or technical versus 21 percent of the diploma nurse fathers. At the other end of the continuum, 48 percent of the diploma group fathers were employed in occupations classified as laborer, semiskilled, or skilled versus 31 percent of the college nurses' fathers.

Educational Plans. The second group of biographical items which consistantly differentiated the two educational groups were those dealing with educational plans. Results on selected items are presented in Table 2. It should be mentioned that even as ninth graders, 60 percent of the diploma group and 55 percent of the college group were planning careers in nursing.

Discussion and Conclusions

This study has attempted to isolate some of the more potent life situation factors indicative of later educational decisions. Two educational groups

were selected from the Project TALENT ninth grade one-year follow-up sample: (1) girls who reported entrance to a three-year school of nursing and (2) girls who entered a four-year college and majored in nursing.

Comparison of these two groups on the aptitude, achievement, interest, and temperament portions of the Project TALENT two-day test battery showed them to be essentially the same. The several differences that were observed were on scales most influenced by home cultural environment. On the other hand, clear differences between the groups were found on the biographical items concerned with family background and educational plans.

The composite picture suggested by these results is that of two essentially different home environments. The girls who enrolled in college came from homes with a considerably higher socioeconomic level (1/2 a standard deviation) and better educated parents. These girls considered a college degree necessary for their work, and had been encouraged to go this route even though more than half planned careers as nurses in ninth grade.

The girls in the three-year nurse group tended to come from "working class" homes with families identical in size to those in the college group. Although the same proportion planned careers in nursing as in the college group, they did not consider a college degree necessary. As compared with parents of college girls, the parents of those in this group were not as well educated and did not encourage their children to enter college.

Are the decisions to attend a technical school versus a four-year college a direct function of the different economic conditions experienced by families of the two groups? Two of the biographical items suggest that the perceived financial capability of the family did not play an important part

in the educational decisions of girls in either group. The groups had almost identical means on the two items inquiring about the parents' ability to afford college and willingness to spend the money necessary for college. However, as seen, the family socioeconomic environment (independent of ability) is a substantial factor in determining the level of advanced education undertaken after high school.

In conclusion, these data support the findings of the previously discussed studies while avoiding their statistical/methodological dilemmas. Moreover, the results suggest that the conclusions regarding the pervasiveness of familial origins, independent of ability differences, can be generalized to include post-high-school educational outcomes rather than merely whether or not one goes on to senior college. Undoubtedly an appreciable number of above average ability and low socioeconomic students pass up opportunities to enter college or other types of post-high-school educational programs for the simple reason that their environmental experiences minimize the importance of educational attainment goals.

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Table 1

Comparison of College and Non-College Nurse Groups on Aptitude - Achievement Tests and Non-Cognitive Scales from the Project TALENT Battery

Variable Names	Means		Std. Deviations		t^b
	college nurses $\bar{N}$=376[a]	3-yr nurses $\bar{N}$=692	college nurses	3-yr nurses	
APTITUDE AND ACHIEVEMENT SCORES					
I.Q. Composite	188.83	187.82	39.93	31.32	.45
Gen. Academic Aptitude Composite	549.96	541.85	79.63	65.02	1.77
Verbal Composite	120.81	118.48	14.24	11.89	2.81**
Quantative Aptitude Composite	102.16	99.76	24.87	23.36	1.56
Technical Aptitude Composite	41.97	41.24	10.84	9.90	1.12
Scientific Aptitude Composite	525.06	518.81	109.58	94.12	.97
TEMPERAMENT SCALES					
Sociability	7.03	7.16	2.86	2.79	-0.69
Social Sensitivity	5.15	4.98	2.25	2.31	1.18
Impulsiveness	1.76	1.87	1.60	1.65	-1.00
Vigor	3.96	4.03	2.14	2.19	-0.57
Calmness	4.42	4.50	2.59	2.51	-0.49
Tidiness	6.51	6.20	2.72	2.69	1.82
Culture	5.93	5.72	2.27	2.16	1.52
Leadership	1.45	1.31	1.39	1.38	1.59
Self-Confidence	5.31	5.25	2.70	2.52	0.36
Mature Personality	12.44	12.02	5.22	5.14	1.30
INTEREST SCALES					
Physical Science	15.12	14.29	7.32	7.17	1.79
Biological Science	24.47	23.81	9.42	9.21	1.10
Public Service	12.24	11.19	11.23	10.61	1.50
Literary-Linguistic	21.20	19.67	8.26	8.08	2.93**
Social Service	25.28	25.06	6.97	6.63	0.53
Artistic	19.72	18.17	9.40	9.06	2.64**
Musical	19.70	16.32	10.88	11.17	4.75**
Sports	21.00	19.93	9.54	9.70	1.72
Hunting-Fishing	14.46	14.37	11.53	11.66	0.13
Business Management	14.37	13.28	7.47	7.21	2.32*
Sales	11.53	10.71	8.34	7.90	1.58
Computation	13.56	13.49	7.72	7.72	0.14
Office Work	19.45	19.80	9.24	9.13	-0.58
Mechanical-Technical	8.21	7.66	5.82	5.64	1.50
Skilled Trades	7.65	7.54	4.94	5.04	0.35
Farming	14.11	13.96	9.40	9.40	0.26
Labor	6.54	6.64	5.18	5.58	-0.31

[a] The average N for the variables listed; the exact N's vary slightly depending on the variable because of missing data.

b t-test of the difference between two means.

*p< .05

**p< .01

Table 2

Comparison of College and Non-College Nurse Groups on Family Characteristics and Educational Plans

Variable Names	Means: college nurses $\bar{N}$=334[a]	Means: 3-yr nurses $\bar{N}$=617	Std. Deviations: college nurses	Std. Deviations: 3-yr nurses	t[b]
FAMILY BACKGROUND					
Socioeconomic Composite	103.23	99.46	9.10	7.84	6.99**
No. books in home[c]	3.66	3.43	1.07	1.04	3.25**
No. news magazines[c]	2.40	2.07	1.45	1.25	3.78**
No. appliances[c]	4.69	4.28	1.24	1.14	5.27**
Luxury items (silver, etc.)	3.83	3.40	1.36	1.32	4.89**
Cultural equip. (hi-fi, etc.)	3.18	2.72	1.38	1.25	5.37**
Sports equipment	3.21	2.86	1.36	1.26	4.13**
Own room, desk, etc.[c]	2.82	2.58	.97	.97	3.73**
No. cars owned	2.47	2.27	.73	.67	4.53**
No. rooms in home	7.83	7.33	1.66	1.43	4.95**
Father's education[c]	5.53	4.60	2.76	2.12	5.94**
Mother's education[c]	5.51	5.07	2.14	2.05	3.23**
No. children in family	3.41	3.47	1.82	1.76	-0.57
No. older brothers	1.58	1.55	.95	.85	0.55
No. older sisters	1.51	1.51	.86	.92	0.00
No. sibs that attended 2-yr coll.	1.96	1.91	.62	.45	1.37
No. sibs that attended 4-yr coll.	2.17	2.05	.82	.67	2.55*
EDUCATIONAL PLANS					
Vocational school[d]	4.02	3.75	1.11	1.28	3.21**
Junior or 4-yr college[d]	2.18	2.92	1.24	1.36	-8.40**
Am't educ. expect to acquire	4.66	4.12	.99	1.22	6.92**
College degree necessary	2.14	2.59	1.35	1.64	-4.32**
Father wants me to go to coll.[e]	2.77	3.24	1.60	1.74	4.11**
Mother wants me to go to coll.[e]	2.66	3.12	1.57	1.72	4.01**
Parents could not afford coll.[e]	3.85	3.87	1.64	1.70	-0.10
Parents not willing to pay.[e]	4.51	4.44	1.49	1.57	0.62

[a] The average N for the items listed; the exact N's vary slightly depending on the variable because of missing data.

[b] t-test of the difference between two means.

[c] These items are among the nine comprising the Socioeconomic Composite.

[d] Responses: 1=definitely will go, ..., 5=definitely will not go.

[e] Responses: 1=extremely important (reason for educational decisions), ..., 5=unimportant, 6=not a reason.

* $p < .05$
** $p < .01$

Table 3

Comparison of College and Non-College Nurse Groups
on Father's Occupation

Occupation	Frequencies		Proportions	
	College Nurses N = 356	3-year Nurses N = 650	College Nurses	3-year Nurses
Farm or ranch owner and/or manager	29	55	8.1	8.5
Farm or ranch foreman	2	1	.6	.2
Farm or ranch worker	4	7	1.1	1.1
Workman or laborer	41	124	11.5	19.1
Private household worker	0	1	0.0	.2
Protective worker	7	20	2.0	3.1
Service worker	2	1	.6	.2
Semi-skilled worker	14	52	3.9	8.0
Skilled worker or foreman	55	139	15.4	21.4
Clerical worker	15	19	4.2	2.9
Salesman	21	39	5.9	6.0
Manager	36	48	10.1	7.4
Official	15	10	4.2	1.5
Proprietor or owner	29	36	8.1	5.5
Professional	39	32	11.0	4.9
Technical	21	14	5.9	2.2
Don't know	26	52	7.3	8.0